AMENDMENTS TO THE SPECIFICATION

In the Specification:

Please insert a new section heading and paragraph before the BACKGROUND OF THE INVENTION on page 1, line 1; said new section heading and paragraph reciting as follows:

CROSS-REFERENCE TO RELATED APPLICATIONS

This patent application is a divisional patent application of copending U.S. patent Application Serial No. 10/078,095, which was filed on February 15, 2002. The disclosure of this parent patent application is incorporated herein by reference in its entirety.

Please replace the paragraph beginning at page 1, line 11, with the following rewritten paragraph:

In the last decade or so, recycled mixed waste paper has been increasingly used as a source for printing and writing paper and other commonly used paper materials. In fact the mixed waste paper termed as "mixed office waste" or "office pack" was not used before the 1990's and is one of the primary raw materials defined as substantially lignin-free pulp. Generally, this recycled mixed waste paper is substantially lignin-free and contains inks and dyes that need to be removed. Such waste papers have been treated with a reductive bleaching agent such as sodium ~~hydrosulfate~~ hydrosulfite (also known as hydro) or formamidine sulfinic acid (also known as FAS) to both bleach the waste paper and color-strip out of the dyes. However, each of these bleaching agents have significant operating problems associated with them. Hydro and FAS have flammability or spontaneous combustion problems and require separate storage areas. They also will decompose readily and thus have a short shelf life and are difficult to store for long periods of time. Furthermore, hydro can be shipped in aqueous solutions that have concentrations of no greater than 15% by weight. It has to be used soon after being made or it will decompose. Thus, it is desirable to use hydro at locations close to where it is made so as to avoid excess shipping costs due to water and loss of product due to decomposition. FAS cannot be dissolved in water in concentrations greater than 3% in solution, which makes it commercially unacceptable. When using FAS as an unstable powder, it is detrimental since it is a health hazard due to residual thiourea. Since both

hydro and FAS are safety concerns, unstable in water and they react quickly with air and other entrained reducible chemicals (i.e. metals), their use to bleach and color-strip mixed waste paper fibers is greatly hindered. They are commonly used in short stages because of their rapid reaction. But in many instances mills have no choice but to use High Density Storage towers which have several hours retention which causes problems in reversion of the pulp or paper product since the current commercial bleaches are consumed in minutes. Accordingly, there is a need to find an improved process for bleaching and color-stripping mixed recycled paper and pulp as well as other substantially lignin-free papers and pulp.

Please replace the paragraph beginning at page 3, line 27, with the following rewritten paragraph:

The term "substantially lignin-free pulp or paper" as used in the present specification and claims is intended to mean any pulp or paper wherein the amount of ~~less~~ lignin is less than or equal to about 10% by weight of the total solids in the pulp or paper. This is to include pulps where most of the lignin has been extracted. It excludes "mechanical" pulp (or paper made from that pulp) where the majority of lignin has not been extracted. The preferred substantially lignin-free pulp or paper contains less than about 5% by weight lignin and is recycled office or mixed waste paper. Other chemical pulps and papers including virgin paper pulps that meet the maximum lignin content could also be treated by the present invention.

Please replace the paragraph beginning at page 7, line 5, with the following rewritten paragraph:

This process is similar but the pulp is from a different pulp mill location using a different low lignin recycled pulp and at ~~70oC~~ 70°C. On this pulp a 78.2 brightness was achieved with 10 lbs per ton of Hydrosulfite. The best synergies of HAS and Hydrosulfite were seen at higher ratios of Hydrosulfite to HAS.

Replace the paragraph beginning at page 7, line 29 with the following rewritten paragraph:

Starting with a pulp that was 54 brightness and a 24.3 b* value we bleached it first with $11 per ton FAS at ~~85oC~~ 85°C and got a brightness of 72.2 and a b value of 8.7.

Using HAS at a similar chemical cost per ton we achieved a 65 brightness and b* = 15.8. Adding FAS to the HAS (1:1) gave some improvement compared to the HAS by itself, brightness = 67.4 and b* = 12.6, and when we added Alum to the combination (1:3:7, FAS/HAS/Alum) the brightness = 69.4 and b* = 10.7 improved again. However the best combination was with FAS/HAS and the initiator Dextrose (1:3:5) yielding a brightness of 72.6 and b* = 8.4. This material is also a more stable chemical blend than 100% FAS and about a dollar per ton less expensive.